

## Carabidae (Coleoptera) from Mt. Changbai-shan in China, Part 1

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**Abstract** During the expedition of Mt. Changbai-shan, China in 2000, a total 24 species of Carabidae was recognized. Of these, 4 species, *Hemicarabus* (*Hemicarabus*) *macleayi coreensis* (Breuning, 1933), *Leptocarabus* (*Aulonocarabus*) *canaliculatus vojnitzi* (Mandl, 1980), *Megodontus* (*Nabicarabus*) *vietinghoffi borealis* Kwon et Lee, 1984, and *Cymindis* (*Tarulus*) *vaporariorum immaculatus* Dejean et Boisduval, 1829, are reported for the first time from China.

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**Key words** Coleoptera, Carabidae, Mt. Changbai-shan, China

### INTRODUCTION

This article is the first report on the expedition for the ground-beetles from Mt. Changbai-shan (Mt. Baekdusan in Korean) in China, which is the highest summit (2,744 m) in the border between North Korea and NE China (41° 1'–42° 1'E; 127° 3'–128° 6'N). The vegetation of the mountain was already mentioned (see Bae *et al.*, 2000). All material examined are based on collections from the vicinity of Mt. Changbai-shan. This survey was scheduled by a collaborative survey program between the Yanbian University, China and the Center for Insect Systematics, Korea, under the financial support by the Korea Research Institute of Bioscience and Biotechnology (KRIBB) from the year 2000. For this program, our investigation team consisted of five specialists including a coleopterist and two lepidopterists, and surveyed from just below the border of the deciduous forest, ca. 1,750–1,800 m, near Changbai Waterfall, near Erdaobaihe (= Idobekwha) near Changbai Waterfall, to Chongshan, and near Longjing (Yongjung) from 21th July to 3rd August in 2000. Carabids were mostly collected by the pitfall traps, usually exposed 1 or 2 days at night on several sites. The trap was a plastic cup of 7 cm in top diameter and 9.5 cm in height. The cups at each site were set about 8–10 m intervals between each trap, with minimum 20 traps to maximum 150 traps. Artificial baits were prepared for effective abduction of ground-beetles; 10 ml sugar solution (90 ml of 99% saturated black sugar solution, 8 ml of ethyl alcohol and 2 ml of acetic acid), powder of dried silkworm (*Bombyx mori*) pupa, canned food of fishes, and sometimes mixed with alcoholic liquor made by rice.

The first several days collecting during this expedition were not successful, due to heavy rainfall, which is inappropriate to collect working ground-beetles by pitfall trap because of the overflow or mixing with baits in cups.

A total 24 species of Carabidae was recognized from this expedition, of these, 4 species are reported for the first time from China. All the materials examined for this study, collected by J.K. Park (SJNU), L. Lu (YU) and D.Y. Kim (YU), will be preserved in the Center for Insect Systematics (CIS) in Korea, and Department of Sericulture and Entomology Resources, Sangju National University in Korea (SJNU), and Horticulture and Forest Department, Yabian University in China (YU).

Collecting dates and sites for the pitfall trap in Mt. Changbai-shan, and its vicinities are as follows.

Site 1. 28. VII, 2000; near Heping Lin Chang, around alt. 850 m (42° 19'04"E, 128° 07'37"N); about 20 km far away from Idobekwha towards Changbai Waterfall: collected by J. K. Park. D. Y. Kim and H. L. Han.

Site 2. 29, VII, 2000; upper limit of Broad-leef Belt including *Betula* spp. around alt. 750 m (42° 03'36"E, 128° 03'23"N), about 500 m far from Hotel (Doogyunsanjang): collected by J.K. Park. D.Y. Kim, H.L. Han.

Site 3. 30, VII, 2000; at entrance of Dixiashenlin, around alt. 1,700 m (42° 04'28"E, 128° 03'55"N); collected by J.K. Park. D.Y. Kim, H.L. Han.

Site 4. 31, VII, 2000; Electric power plant, around alt. 760 m (42° 22'34"E, 128° 05'55"N); collected by J.K. Park. D.Y. Kim, H.L. Han.

Site 5. 1, VIII, 2000; Changshan, around alt. 600 m (42° 05'33"E, 128° 59'33"N); collected by J.K. Park. D.Y. Kim, H.L. Han.

Site 6. 2, VIII, 2000; Jiashan, around alt. 600 m (42° 38' 40"E, 128° 54'28"N); collected by J.K. Park. D.Y. Kim, H.L. Han.

## SYSTEMATIC ACCOUNTS

### Family Carabidae

#### Tribe Carabini

#### *Campalita chinense* (Kirby, 1818)

(Fig. 8)

*Calosoma chinense* Kirby, 1818, Trans. Linn. Soc. Lond. 12: 379.

*Material examined.* 2 ♂, 1 ♀, site 4.

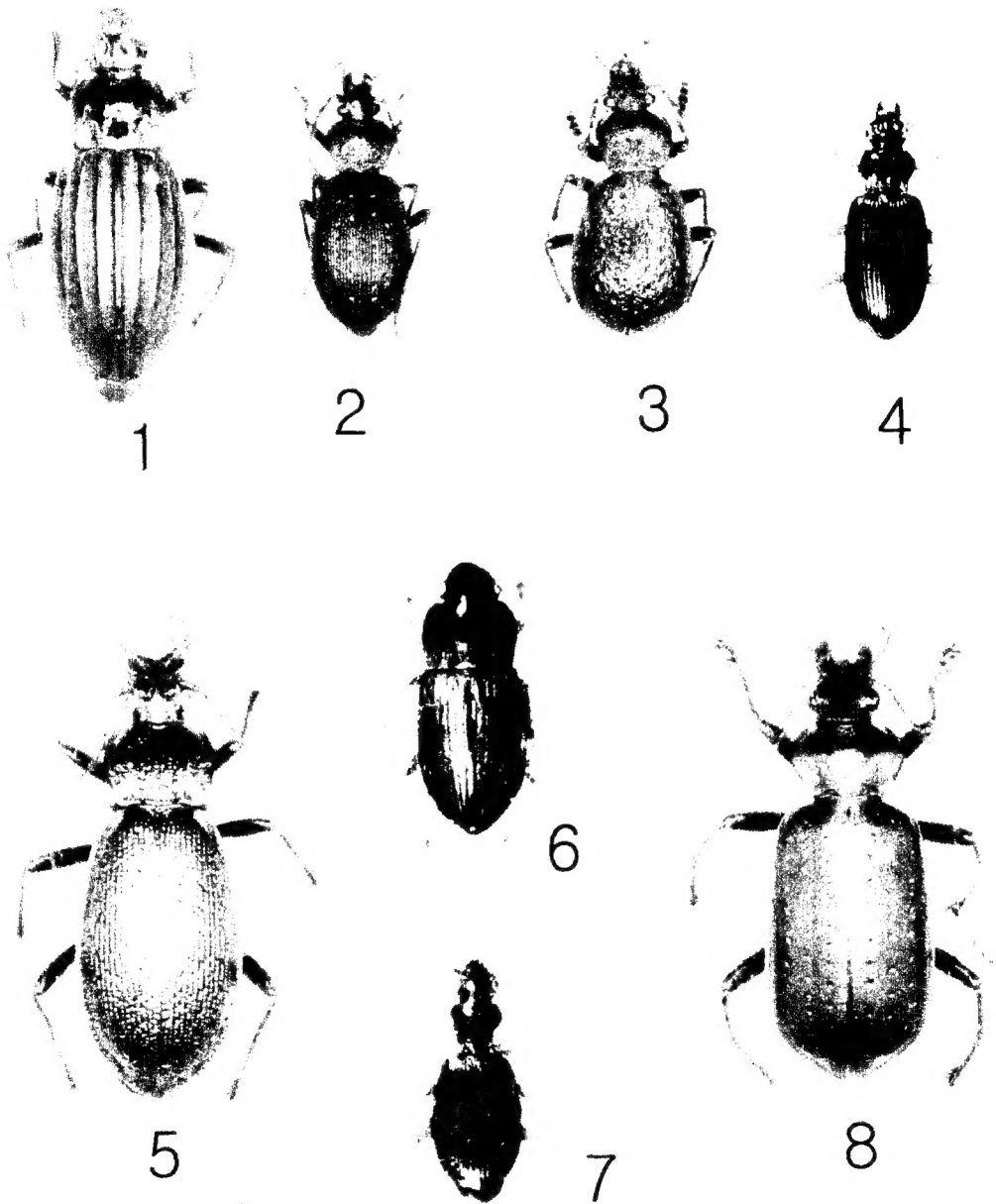
*Distribution.* China, Korea, Japan, Russian far east.

*Remarks.* This species is easily distinguished by the granulated or circled elytral pores.

#### *Carabus (Carabus) granulatus ussuriensis* Born, 1914

*Carabus (Carabus) granulatus ussuriensis* Born 1914, Soc. Ent. 29: 1914.

*Material examined.* 1 ♀, site 4; 1 ♀, site 6.



**Figs 1-8.** Adults: 1, *Leptocarabus (Aulonocarabus) canaliculatus vojnitsi* (Mandl, 1980); 2, *Hemicarabus (Hemicarabus) macleayi coreensis* (Breuning, 1933); 3, *Tomocarabus fraterculus fraterculus* (Reitter, 1895); 4, *Diplous caligatus* Bates; 5, *Megodontus (Nabicarabus) vietinghoffi borealis* Kwon et Lee, 1984; 6, *Harpalus (Harpalus) pallidipennis* Morawitz, 1862; 7, *Cymindis (Tarulus) vaporariorum immaculatus* Dejean et Boisduval, 1829; 8, *Campalita chinense* (Kirby, 1818)

*Distribution.* China, Korea, Russia.

***Carabus (Parhomopterus) sternbergi sternbergi* Roeschke, 1898**

*Carabus (Parhomopterus) sternbergi sternbergi* Roeschke, 1898, Ent. Nachr. 8: 121: 122.

*Material examined.* 1 ♀, site 4.

*Distribution.* China, Korea.

*Remarks.* This species is one of the most common species in Korea and eleven subspecies are reported in Korea.

***Hemicarabus (Hemicarabus) macleayi coreensis* (Breuning, 1933)**

(Fig. 2)

*Carabus (Hemicarabus) macleayi* n. *macleayi* + *C. (C.S.H) m. m. coreensis* Breuning, 1933, Best.-Tab. Eur. Col. 107: 857-858.

*Material examined.* 2 ♀, site 4; 4 ♂, 1 ♀, site 5.

*Distribution.* China (new record), Korea.

*Remarks.* This species was previously recorded from Mt. Baekdusan in north Korea (Kwon et Lee, 1984).

***Leptocarabus (Aulonocarabus) canaliculatus vojnitsi* (Mandl, 1980)**

(Fig. 1)

*Carabus canaliculatus vojnitsi* Mandl, 1980, Fol. Ent. Hung. 41(33): 138-139.

*Material examined.* 1 ♂, 1 ♀, site 1; 1 ♂, site 2; 2 ♂, 1 ♀, site 3; 13 ♂, 20 ♀, site 4; 2 ♂, site 5; 2 ♂, 2 ♀, site 6.

*Distribution.* China (new record), Korea.

*Remarks.* By Esk and KSAE (1994), three subspecies, *careniger* (Chaudoir, 1863), *pappianus* (Mandel, 1980), and *vojnitsi* (Mandel, 1980), are known in Korea.

***Lipster (Leptinocarabus) wulffi wulffi* (Morawitz, 1862)**

*Carabus wulffi* Morawitz, 1862, Bull. Acad. Sci. Pet. 5: 192.

*Material examined.* 1 ♂, site 1; 1 ♂, site 2; 2 ♀, site 3; 4 ♀, site 4; 2 ♂, 6 ♀, site 5; 3 ♂, 3 ♀, site 6.

*Distribution.* China, Korea, Russia.

*Remarks.* By Esk and KSAE (1994), four subspecies, *wulffi* (Morawitz, 1862), *alpinus* (Kwon et Lee, 1984), *opacipennis* (Reitter, 1895), *ssangnanensis* (Kwon et Lee, 1984) are known in Korea.

***Tomocarabus fraterculus fraterculus* (Reitter, 1895)**

(Fig. 3)

*Carabus* (*Eurycarabus*) *fraterculus* Reitter, 1895, Wien. Ent. Zeit. 14(4): 107.*Material examined.* 1 ♂, site 3.*Distribution.* China, Korea, Russia.*Remarks.* By Esk and KSAE (1994), five subspecies, *fraterculus* (Reitter, 1895), *affinis* (Kwon et Lee, 1984), *assimilis* (Kwon et Lee, 1984), *togyusanus* (Imura, 1989), *yeongsiki* (Kwon et Lee, 1984), are known in Korea.***Megodontus (Nabicarabus) vietinghoffi borealis* Kwon et Lee, 1984**

(Fig. 5)

*Megodontus* (*Nabicarabus*) *vietinghoffi borealis* Kwon et Lee, 1984, Ins. Koreana 4: 103–104.*Material examined.* 1 ♀, site 3; 1 ♂, 1 ♀, site 4.*Distribution.* China (new record), Korea.**Tribe Nebrini*****Leistus (Neoleistus) niger niger* Gebler, 1847***Leistus niger niger* Gebler, 1847, Bull. Soc. Imp. Net. Mosc. 20(2): 307.*Material examined.* 1 ♂, site 4; 1 ♀, site 6.*Distribution.* China, Korea, Russia (E. Sibeia).*Remarks.* This species is easily distinguished from the ones of the genus *Nebria* by the developed mandible and heart-shape of pronotum perfectly.**Tribe Bembidiini*****Bembidion (Peryphus) semilunium semilunium* Netolitzky, 1914***Bembidion semilunium semilunium* Netolitzky, 1914, Kol. Rdsch. 29: 33.*Material examined.* 2ex, site 5; 2ex, site 6.*Distribution.* China, Korea, Russia, Mongolia.***Bembidion (Peryphus) scopulinum* (Kirby, 1837)***Peryphus scopulinum* Kirby, 1837, Faun. Bor. Amer.: 327.*Material examined.* 1ex, 30 VII 2000; 2ex, 31 VII; 2 ex, 1 VIII; 2ex, 2 VIII, all the same year.*Distribution.* China, Korea, Japan, Russia (E. Siberia, Maritime Territory), Mongolia, N. America.*Remarks.* This species is one of the common species in Korea and lives in sand surrounding by clear

water. Sometimes, it is discovered in a cave.

### Tribe Patrobini

#### ***Diplous caligatus* Bates**

(Fig. 4)

*Material examined.* 1 ♂, site 4.

*Distribution.* China, Korea, Japan.

### Tribe Pterostichini

#### ***Lesticus (Triplogenus) magnus* (Motschulsky, 1860)**

*Omaseus magnus* Motschulsky, 1860, Et. Ent. 9: 5–6.

*Material examined.* 1 ♂, site 6.

*Distribution.* China, Korea, Japan.

#### ***Poecilus lamproderus* (Chaudior, 1868)**

*Pterostichus lamproderus* Chaudoir, 1868, L'Abeille 5: 232.

*Material examined.* 1 ♀, site 4; 1 ♂, site 5.

*Distribution.* China, Korea, China, Russia (Maritime Territory).

#### ***Pterostichus (Metalophilus) interruptus* Dejean, 1828**

*Pterostichus interruptus* Dejean, 1828, Spec. Gen. Col. 3: 389.

*Material examined.* 1 ♂, site 1; 1 ♂, 3 ♀, site 2; 1 ♂, 5 ♀, site 4; 1 ♀, site 5; 1 ♀, site 6.

*Distribution.* China, Korea, Russia.

*Remarks.* Distinct irregular intervals of the elytra are a separable characteristic of this species from its allies.

#### ***Pterostichus (Steropus) orientalis orientalis* Motschulsky, 1845**

*Pterostichus (Steropus) orientalis* Motschulsky, 1845, Ins. Siber.: 151.

*Material examined.* 1 ♀, site 2; 1 ♂, site 3; 3 ♂, 7 ♀, site 4.

*Distribution.* China (new record), Korea, Japan, Russia (E. Siberia).

**Tribe Platynini*****Dolichus halensis halensis* (Schaller, 1783)**

*Carabus halensis* Schaller, 1783, Schrift. Naturf. Ges. Halle, 1: 317.

*Material examined.* 1 ♀, site 6.

*Distribution.* China, Korea, Japan, Russia (Siberia).

*Remarks.* There are several characteristics in the colour of the dorsum: Reddish or black pronotum and elytra, and all black in dorsum.

**Tribe Harpalini*****Harpalus (Harpalus) pallidipennis* Morawitz, 1862**

(Fig. 6)

*Harpalus pallidipennis* Morawitz, 1862, Mel. Biol. 4: 221.

*Material examined.* 1 ♀, site 5.

*Distribution.* China, Korea, Japan, Mongolia, Russia (E. Siberia).

***Harpalus (Cephalomorphus) capito* Morawitz, 1864**

*Harpalus capito* Morawitz, 1862, Mel. Biol. 4: 220–221, 226–227.

*Material examined.* 1 ♂, site 5.

*Distribution.* China, Korea, Japan, Russia (Siberia).

***Harpalus (Pseudophonus) vicarius* Harold, 1883**

*Harpalus vicarius* Harold, 1878, Deutsch. Ent. Zeitschr. 22: 66.

*Material examined.* 6 ♂, 2 ♀, site 5; 1 ♂, 3 ♀, site 6.

*Distribution.* China, Korea, Japan.

***Harpalus (Harpalus) corporosus* (Motschulsky, 1861)**

*Pheuginus (Harpalus) corporosus* Motschulsky, 1861, Etud. Ent. 10: 3.

*Material examined.* 3 ♂, 2 ♀, site 5; 2 ♂, 2 ♀, site 6.

*Distribution.* China, Korea, Japan, China, Russia (E. Siberia).

***Harpalus (Pseudophonus) griseus* (Panzer, 1797)**

*Carabus griseus* Panzer, 1797, Faun. Germ. 38, no. 1.

*Material examined.* 7 ♂, 7 ♀, site 5; 2 ♂, 2 ♀, site 6.

*Distribution.* China, Korea, Japan, Mongolia, Afghanistan, Europe, N. Africa.

### Tribe Callistini

#### ***Chlaenius (Chinelaus) pallipes* Gebler, 1823**

*Chlaenius pallipes* Gebler, 1823, Mem. Soc. Nat. Mosc. 6: 128.

*Material examined.* 2 ♂, 1 ♀, site 6.

*Distribution.* China, Korea, Japan, Mongolia, Russia (Siberia).

### Tribe Lebiini

#### ***Cymindis (Tarulus) vaporariorum immaculatus* Dejean et Boisduval, 1829**

(Fig. 7)

*Cymindis immaculata* Dejean and Boisduval, 1829: 93, pl. 10, fig. 4.

*Material examined.* 1 ♀, site 1.

*Distribution.* China (new record), Korea, Japan, Mongolia, Russian Far East.

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